



Attachment Listing Claims Presently Under Consideration

TAGGED EXTENDIBLE PRIMERS AND EXTENSION PRODUCTS (AS AMENDED)

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75. A duplex comprising an oligonucleotide primer and a template, wherein the primer is covalently coupled to a chromophore or fluorophore so as to allow chain extension by a polymerase.

76. (Four times amended) A duplex comprising an extended oligonucleotide primer and a template, produced by providing a duplex according to claim 75 and extending the oligonucleotide primer with a polymerase.

77. (Four times amended) A single-stranded labeled polynucleotide produced by separating the extended oligonucleotide primer from the duplex of claim 76.

81. A set of duplexes comprising two or more of the duplexes of claim 75.

82. A set of duplexes comprising two or more of the duplexes of claim 76.

83. (Three times amended) A set of polynucleotides comprising two or more single-stranded labeled polynucleotides of claim 77.

88. A set of reagents comprising oligonucleotide primers covalently coupled to one or more chromophores or fluorophores so as to allow chain extension by a polymerase, and a polymerase.

98. (Three times amended) A single-stranded labeled polynucleotide comprising a first portion and a second portion,

wherein the first portion comprises an oligonucleotide primer covalently coupled to a chromophore or fluorophore; and

wherein the second portion is produced by extension of the first portion along a complementary template.

99. (Three times amended) The polynucleotide of claim 98, wherein the chromophore or fluorophore is covalently coupled to the first portion through an amine linkage.

100. (Three times amended) The polynucleotide of claim 98, wherein the chromophore or fluorophore is covalently coupled to the first portion at its 5' end.

101. (Four times amended) The duplex of claim 75, prepared by a method comprising hybridizing an oligonucleotide primer to a template, wherein the primer is covalently coupled to a chromophore or fluorophore so as to allow chain extension by a polymerase.

102. The duplex of claim 101, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

103. The duplex of claim 101, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

105. (Four times amended) A single-stranded labeled polynucleotide produced by the method comprising the steps of extending the oligonucleotide primer of the duplex

of claim 75 by a polymerase to produce a labeled polynucleotide and separating the labeled polynucleotide from the template.

106. (Five times amended) The polynucleotide of claim 105, wherein the chromophore or fluorophore is covalently coupled to the oligonucleotide through an amine linkage.

107. (Five times amended) The polynucleotide of claim 105, wherein the chromophore or fluorophore is covalently coupled to the oligonucleotide at its 5' end.

109. (Five times amended) A chain termination DNA sequencing method comprising extending the primer of the duplex of claim 75 by a polymerase to produce a labeled polynucleotide, and separating the labeled polynucleotide from the template.

110. (Four times amended) A chain termination DNA sequencing method comprising extending the primers of the set of duplexes of claim 81 by a polymerase to produce a set of labeled polynucleotides.

111. (Four times amended) The chain termination DNA sequencing method of claim 110, wherein the set of duplexes comprises four DNA sequencing reactions, wherein each labeled polynucleotide is distinguishable by spectral characteristics of the chromophore or fluorophore covalently coupled thereto.

118. (Three times amended) The oligonucleotide primer of claim 75, wherein the primer is DNA.

119. (Three times amended) The oligonucleotide primer of claim 75 wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

120. The duplex of either of claims 75 or 76, wherein the chromophore or fluorophore is detectable by exposure to a laser.

121. The set of duplexes of either of claims 81 or 82, wherein the primers are DNA.

122. The set of duplexes of either of claims 81 or 82, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

123. The set of duplexes of either of claims 81 or 82, wherein the chromophore or fluorophore is detectable by exposure to a laser.

124. The set of reagents of claim 88, wherein the primers are DNA.

125. The set of reagents of claim 88, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

126. The set of reagents of claim 88, wherein the chromophore or fluorophore is detectable by exposure to a laser.

127. (Twice amended) The polynucleotide of any of claims 105 to 107, wherein the primer is DNA.

128. (Twice amended) The polynucleotide of any of claims 105 to 107, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

129. (Twice amended) The polynucleotide of any of claims 105 to 107, wherein the chromophore or fluorophore is detectable by exposure to a laser.

130. The duplex of any of claims 101 to 103, wherein the primer is DNA.

131. The duplex of any of claims 101 to 103, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

132. The duplex of any of claims 101 to 103, wherein the chromophore or fluorophore is detectable by exposure to a laser.

133. The duplex of either of claims 75 or 76, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

134. The set of duplexes of either of claims 81 or 82, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

135. The set of reagents of claim 88, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

136. The duplex of either of claims 75 or 76, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

137. The set of duplexes of either of claims 81 or 82, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

138. The set of reagents of claim 88, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

139. (Once amended) The polynucleotide of claim 77, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

140. (Once amended) The polynucleotide of claim 77, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

141. (Once amended) The polynucleotide of claim 77, wherein the chromophore or fluorophore is detectable by exposure to a laser.

142. (Once amended) The set of polynucleotides of claim 83, wherein the primers are DNA.

143. (Once amended) The set of polynucleotides of claim 83, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

144. (Once amended) The set of polynucleotides of claim 83, wherein the chromophore or fluorophore is detectable by exposure to a laser.

145. The set of polynucleotides of claim 83, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

146. The set of polynucleotides of claim 83, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

147. A duplex comprising an oligonucleotide primer and a template, wherein the primer hybridizes to a specific region of the template and wherein the primer is

covalently coupled to a chromophore or fluorophore so as to allow chain extension by a polymerase.

148. (New) A plurality of identical oligonucleotide primers of defined length and base sequences wherein each primer is covalently coupled to a fluorophore or chromophore so as to allow chain extension by a polymerase.

149. (New) The plurality of claim 148 wherein said primers have a free 3' hydroxyl group.

150. (New) The plurality of claim 149 wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

151. (New) The plurality of claim 148 wherein said primers are coupled to said fluorophore or chromophore by an amine linkage.

152. (New) A composition comprising the plurality of claim 148.

153. (New) The composition of claim 152 further comprising a buffer.

154. (New) A set of reagents comprising the plurality of claim 148 and a polymerase.

155. (New) A set of reagents comprising two or more pluralities of oligonucleotide primers of claim 148 wherein each plurality has a different emission spectra.

156. (New) A plurality of single-stranded labeled polynucleotides produced by the method comprising the steps of hybridizing the plurality of oligonucleotide primers of claim 148 to a template thereby forming a plurality of duplexes; extending the primers of said duplexes by a polymerase thereby forming labeled polynucleotides; and separating said labeled polynucleotides from said duplexes.

157. (New) A set of single stranded labeled polynucleotides comprising two or more pluralities of polynucleotides of claim 156, wherein each plurality has a different emission spectra.

158. (New) The plurality of claim 148 wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

159. (New) The plurality of claim 148 wherein the chromophore or fluorophore is detectable by exposure to a laser.